

Claims

What is claimed is:

- 1 1. A method for implementing a level bias function for branch
2 prediction control for generating test simulation vectors comprising the steps
3 of:
4 receiving user selected options for a set of constraints for generating
5 test simulation vectors for branch conditional instructions;
6 reading current resource values for predicting a branch for a branch
7 conditional instruction; and
8 generating a branch operand field BO to include a set of valid values
9 using said current resource values and based upon said user selected
10 constraints; said branch operand field BO defining conditions under which a
11 branch is taken.
- 1 2. A method for implementing a level bias function for branch
2 prediction control as recited in claim 1 wherein the step of receiving user
3 selected options for a set of constraints includes the steps of receiving user
4 selected options for constraints including a percentage branch should be
5 taken; a percentage branch should be predicted; and an accuracy of the
6 prediction.
- 1 3. A method for implementing a level bias function for branch
2 prediction control as recited in claim 1 wherein the step of reading current
3 resource values for predicting a branch for a branch conditional instruction
4 includes the steps of reading a count register (CTR) value and a plurality of
5 branch condition register (CR) values; said CR values including a current
6 value of said branch operand field BO, and a current value of a branch
7 operand field BI, said branch operand field BI indicating a CR bit to be read.

1 4. A method for implementing a level bias function for branch
2 prediction control as recited in claim 3 wherein the step of generating said
3 branch operand field to include said set of valid values using said current
4 resource values and based upon said user selected constraints includes the
5 step of reducing said branch operand field BO based upon a current CR
6 value of said branch operand field BI and based upon said user selected
7 constraints.

1 5. A method for implementing a level bias function for branch
2 prediction control as recited in claim 3 wherein the step of generating said
3 branch operand field to include said set of valid values using said current
4 resource values and based upon said user selected constraints includes the
5 steps of reducing said branch operand field BO based upon said a current
6 count register (CTR) value and said user selected constraints.

1 6. A method for implementing a level bias function for branch
2 prediction control as recited in claim 2 wherein the step of generating said
3 branch operand field to include said set of valid values using said current
4 resource values and based upon said user selected constraints includes the
5 steps of reducing said branch operand field BO based upon user selected
6 options for said percentage branch should be predicted and said accuracy of
7 the prediction constraints.

1 7. A computer program product for implementing a level bias
2 function for branch prediction control for generating test simulation vectors in
3 a computer system, said computer program product including instructions
4 executed by the computer system to cause the computer system to perform
5 the steps of:
6 receiving user selected options for a set of constraints for generating
7 test simulation vectors for branch conditional instructions;
8 reading current resource values for predicting a branch for a branch
9 conditional instruction; said current resource values including a count
10 register (CTR) value and a plurality of branch condition register (CR) values;
11 and
12 generating a branch operand field BO to include a set of valid values
13 using said current resource values and based upon said user selected
14 constraints; said branch operand field defining conditions under which a
15 branch is taken.

1 8. A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 7 wherein the step
3 of receiving user selected options includes the step of receiving user
4 selected options for said set of constraints including a percentage branch
5 should be taken; a percentage branch should be predicted; and an accuracy
6 of the prediction.

1 9. A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 7 wherein the step
3 reading current resource values includes the steps of reading a current CR
4 value of said branch operand field BO, a current CR value of a branch
5 operand field BI and a current CTR value.

1 10. A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 9 wherein the step
3 generating said branch operand field BO to include said set of valid values
4 using said current resource values and based upon said user selected
5 constraints includes the step of reducing said branch operand field BO
6 based upon said current CR value of said branch operand field BI and based
7 upon said user selected constraints.

1 11. A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 9 wherein the step
3 generating said branch operand field BO to include said set of valid values
4 using said current resource values and based upon said user selected
5 constraints includes the step of reducing said branch operand field BO
6 based upon said current CTR value and based upon said user selected
7 constraints.

1 12. A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 8 wherein the step
3 generating said branch operand field BO to include said set of valid values
4 using said current resource values and based upon said user selected
5 constraints includes the step of reducing said branch operand field BO
6 based upon based upon said user selected options for said percentage
7 branch should be predicted and said accuracy of the prediction constraints.

1 13. Apparatus for implementing an operand level bias for branch
2 prediction control for generating test simulation vectors comprising:
3 a user interface for receiving user selected options for a set of
4 constraints for generating test simulation vectors for branch conditional
5 instructions;
6 a count register (CTR) and a branch condition register (CR) for storing
7 current resource values for predicting a branch for a branch conditional
8 instruction; and
9 an level bias function for generating a branch operand field BO to
10 include a set of valid values using said current resource values and based
11 upon said user selected constraints; said branch operand field BO defining
12 conditions under which a branch is taken.

1 14. Apparatus for implementing an operand level bias for branch
2 prediction control as recited in claim 13 wherein set of constraints includes a
3 percentage branch should be taken; a percentage branch should be
4 predicted; and an accuracy of the prediction.

1 15. Apparatus for implementing an operand level bias for branch
2 prediction control as recited in claim 13 wherein said branch condition
3 register (CR) stores current resource values including a current value of said
4 branch operand field BO and a current value of a branch operand field BI,
5 said branch operand field BI indicating a CR bit to be read; and said count
6 register (CTR) stores a current count value.

1 16. Apparatus for implementing an operand level bias for branch
2 prediction control as recited in claim 15 wherein said level bias function
3 generates said branch operand field BO using said current value of said
4 branch operand field BI and based upon said user selected constraints to
5 reduce said current value of said branch operand field BO to include said set
6 of valid values.

1 17. Apparatus for implementing an operand level bias for branch
2 prediction control as recited in claim 15 wherein said level bias function
3 generates said branch operand field BO using said current count value of
4 said count register (CTR) and based upon said user selected constraints to
5 reduce said current value of said branch operand field BO to include said set
6 of valid values.

1 18. Apparatus for implementing an operand level bias for branch
2 prediction control as recited in claim 14 wherein said level bias function
3 generates said branch operand field BO using said percentage branch
4 should be predicted and said accuracy of the prediction constraints to
5 reduce said current value of said branch operand field BO to include said set
6 of valid values.